



PCT #6
JC10 Rec'd PGT/PTO 22 FEB 2002

410.020

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
C. D'HULST et al :
Serial No.: 09/980,771 :
Filed: November 15, 2001 :
For: STARCH...AND THEIR USE :

600 Third Avenue
New York N.Y. 10016
February 22, 2002

LETTER

Asst. Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants are submitting herewith an English translation of the International Preliminary Examination Report issued in the PCT application corresponding to the above-identified application.

Respectfully submitted,
Bierman, Muserlian and Lucas

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CAM:ds
Enclosures

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Date of Receipt FEB. 22, 2002
I hereby certify that this paper or its copy is deposited with the United States Postal Service under 39 CFR 1.11 on the date indicated above and is submitted to the Commissioner of Patents and Trademarks, Washington, D.C.

FEB. 22, 2002
D. Maloney
Director of Patent and Trademark

Translation



PATENT COOPERATION TREATY



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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WOB 99 AB CNR AMYL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR00/01384	International filing date (day/month/year) 19 May 2000 (19.05.00)	Priority date (day/month/year) 21 May 1999 (21.05.99)
International Patent Classification (IPC) or national classification and IPC C12N 15/82		
Applicant CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 13 October 2000 (13.10.00)	Date of completion of this report 13 August 2001 (13.08.2001)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR00/01384

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages 1-45, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages 1-19, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the drawings:
pages 1/8-8/8, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages 1-21, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☒ contained in the international application in written form.
- ☒ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-19 (in part)	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-19	NO
Industrial applicability (IA)	Claims	1-19	YES
	Claims		NO

2. Citations and explanations

The following documents are referred to:

- D1: WO-A-98/14601 (EXSEED GENETICS L L C) 9 April 1998 (1998-04-09), cited in the application;
- D2: DATABASE SWISSPROT [on-line] 1 August 1998 (1998-08-01) D'HULST C. ET AL.: "Cloning of the cDNA encoding for the GBSSI in the green algae *Chlamydomonas reinhardtii*", XP002146121;
- D3: DATABASE EMBL SEQUENCE LIBRARY [on-line] 2 June 1998 (1998-06-02) D'HULST C. ET AL.: "Cloning of the cDNA encoding for the GBSSI in the green algae *Chlamydomonas reinhardtii*", XP002146137.

- I) The present application is based on a method for obtaining starch grains containing a polypeptide of interest, said polypeptide of interest being conveyed towards the plastids where the biosynthesis of the starch grains occurs by means of a fusion polypeptide of the said polypeptide of interest and a starch synthetase of the GBSSI type (i.e. linked to the starch grain).

This approach has already been used in prior art, particularly in D1, which clearly indicates that the preferred enzyme is of the GBSSI type (page 13, lines

23-24): The difference between the present application and D1 lies in the fact that the present application uses a different GBSSI to that of D1.

The GBSSI of the present application was identified in the prior art (see D3 and D4) and could therefore be cloned and used as a straightforward alternative in relation to D1 (note also that D1 describes how to clone such enzymes). Consequently, no inventive step can be found on the basis of the specific GBSSI used in the present application.

The description (page 4, lines 19-26) suggests that an inventive step ought to be acknowledged on the basis of the method used to transform the plants and to obtain starch grains transformed by the sequences defined in the application. In other words, purely on the basis of the feasibility of the method. No inventive step can be recognised on this basis, firstly because the present application discloses no method that is not already explicitly or implicitly disclosed by D1, and secondly because of the fact that once the initial hybrid structure has been defined, the use thereof to transform plants and to obtain starch grains containing the peptide of interest merely involves routine steps that are well known to a person skilled in the art.

Consequently, the subject matter of Claims 1-19 involves no inventive step within the meaning of PCT Article 33(3).

- II) The applicant should also note that many of the claims (1 and 8, for example) are anticipated by D1 in so far as they refer to a "protein derived" from the starch synthetase or derived from the GBSSI as per the present application (PCT Article 33(2)).